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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,145	11/17/2003	Maksim Kuzmenka	2002 P 11260 US	1902

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EXAMINER

SPITTLE, MATTHEW D

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,145

Applicant(s)

KUZMENKA, MAKSIM

Examiner

Matthew D. Spittle

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/8/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 8, lines 2 – 3 incorrectly names a termination resistor as item 112 of Figure 1; item 112 does not exist.
2. Page 8 line 38 – page 9, line 19 discloses portions of the data bus with respect to Figure 1. In this figure, item 162 is left out from being identified as part of said data bus.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:
4. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 10 describes the trace impedance of the flexible bridge as being adapted to the trace impedance of buses on the memory module. In this context it is unclear what is meant by the term “adapted” and therefore the claim fails to point out and distinctly claim as specified under 35 USC 112, second paragraph.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

8. A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Lee.

10. Lee describes a first memory module (figure 3a, item 20a), a second memory module (figure 3a, item 20b), and a flexible bridge (figure 3a, item 30) connecting the first and second memory modules providing a signal path there between (column 2, lines 20 – 27).

11. Thus, Lee reasonably appears to teach all limitations of claim 11, and thus anticipates this claim within the meaning of 35 USC 102(e).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

14. Determining the scope and contents of the prior art.
15. Ascertaining the differences between the prior art and the claims at issue.
16. Resolving the level of ordinary skill in the pertinent art.
17. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claims 1, 2, 3, 4, 6, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaba et al in view of Lee.

19. With regard to claim 1, Funaba et al teach a memory system comprising a circuit board having a first means for receiving and a second means for receiving, where a memory module is received in both said means for receiving (claim 1; paragraph 14; Figure 11). Funaba et al fail to teach a flexible bridge connecting said first and second memory modules for providing a signal bus between said memory modules.

20. Lee teaches a flexible bridge connecting said first and second memory modules for providing a signal bus between said memory modules (column 2, lines 20 – 27, 33 – 36), but fails to describe a separate receiving means for each said memory module into the said circuit board.

21. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the memory system of Funaba et al to

use the flexible bridge of Lee to provide a signal bus between said memory modules.

22. With regard to claims 2 and 3, Lee teaches the additional limitation where the memory modules are received in the respective means for receiving at a first side, and wherein the flexible bridge extends from a second side arranged opposite to the first side thereof (column 3, lines 35 – 45).

23. With regard to claim 4, Lee teaches the additional limitation of the said memory modules being comprised of DDR memory chips (column 3, lines 48 – 54).

24. With regard to claim 5, Lee teaches the additional limitation of the flexible bridge connecting signal lines on each of the memory modules. Said signal lines can provide at least a data bus and/or a control signal bus between said memory modules (column 2, lines 33 – 43).

25. With regard to claim 6, Funaba et al teach the additional limitation of a memory system wherein the memory controller and signal lines are provided on a circuit board, wherein signal lines provide a data bus and/or a control signal bus between said controller and a first memory module (paragraphs 14, 15, 17).

26. With regard to claim 7, Funaba et al teach the additional limitation of a memory system wherein the signal lines on the circuit board provide a lock bus between the memory controller and memory modules (paragraph 16).

27. With regard to claim 8, Funaba et al teach the additional limitation of a memory system further comprising a third memory module received in a third

means for receiving and wherein signal lines on a circuit board further provide a data bus and/or a control signal bus between second and third memory modules (paragraphs 14, 15, 17; claim 15).

28. With regard to claim 10, Funaba et al teach the additional limitation of matching the trace impedance of buses on the memory module and circuit board to which the signal bus is connected to compensate for signal reflection and waveform distortion (paragraphs 4, 95, 126).

29. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funaba et al in view of Lee, and further in view of Angelucci.

30. Funaba et al, and Lee teach all limitations of claim 1, but fail to teach the flexible bridge having a ground layer and signal layer.

31. Angelucci teaches a flexible printed circuit board having a signal layer and a ground layer (claim 7).

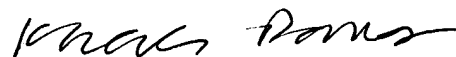
32. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to use a flexible printed circuit board having a signal layer and a ground layer as taught by Angelucci to allow for electrical communication in the memory system of Funaba et al, and Lee.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Spittle whose telephone number is (571) 272-2467. The examiner can normally be reached on M-F 8-4:30.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Khanh Dang
Primary Examiner